### **Final Version [HW by SS]**

The finalized version of the scope note of E54 Dimension, as updated by SS

**E54 Dimension**

Subclass of: E1 CRM Entity

Superclass of: E97 Monetary Amount

Scope note: This class comprises quantifiable properties that can be measured by some calibrated means and can be approximated by values, i.e. by points or regions in a mathematical or conceptual space, such as natural or real numbers, RGB values etc.

An instance of E54 Dimension represents the empirical or theoretically derived quantity, including the precision tolerances resulting from the particular method or calculation. The identity of an instance of E54 Dimension depends on the method of its determination because each method may produce different values even when determining comparable qualities. For instance, the wingspan of a bird alive or dead is a different dimension. Thermoluninescence dating and Rehydroxylation [RHX] dating are different dimensions of temporal distance from now, even if they aim at dating the same object. The method of determination should be expressed using the property P2 has type (is type of). Note that simple terms such as “diameter” or “length” are normally insufficient to unambiguously describe a respective dimension. In contrast, “maximum linear extent” may be sufficient.

The properties of the class E54 Dimension allow for expressing the numerical approximation of the values of instances of E54 Dimension adequate to the precision of the applied method of determination. If the respective quantity belongs to a non-discrete space according to the laws of physics, such as spatial distances, it is recommended to record them as approximations by intervals or regions of indeterminacy enclosing the assumed true values. For instance, a length of 5 cm may be recorded as 4.5-5.5 cm, according to the precision of the respective observation. Note, that comparability of values described in different units depends critically on the representation as value regions.

Numerical approximations in archaic instances of E58 Measurement Unit used in historical records should be preserved. Equivalents corresponding to current knowledge should be recorded as additional instances of E54 Dimension, as appropriate.

Examples:

* The weight of the Luxor Obelisk [250 metric tons]
* The vertical height of the statue of David by Michaelangelo [5.17 metres]
* The weight of the Great Star of Africa diamond [530.2 carats]
* The calibrated C14 date for the Shroud of Turin [AD1262-1312, 1303-1384 ]
* The horizontal diameter of the Stonehenge Sarcen Circle [33 metres]
* The length of the sides of the Great Pyramid at Giza [755.9 feet]
* Christie’s hammer price for “Vase with Fifteen Sunflowers” in British Pounds (E97)
* The duration of the time span of the Battle of Issos [333 B.C.E.]

In First Order Logic:

E54(x) ⊃ E1(x)

Properties:

P90 has value: E60 Number

P91 has unit (is unit of): E58 Measurement Unit